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Hope Intervention against Depression in the Survivors of Cold Lava Flood from Merapi Mount

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Abstract

The series of Mount Merapi eruptions, which involved a big explosion on 26 October 2010, had been made the damages. It caused the residents, especially those having responsible for other people such as mothers, volunteers, teachers and village apparatus, get depressed. They went through so much depression because besides as survivors their beings were important to others. Therefore, the impacts they felt were not only physical but also psychological. In addition to depression, they were attacked by anxiety. The subjects of this research were groups of mothers, volunteers, teachers and village officials of Sirahan Village, Magelang Regency. Intervention of Hope to lessen depression was taken to them in order to help them face the post-disaster situations. Hope Intervention covered session aiming to identify goals, plan strategies and strengthen motivation to reach the goals. The intervention was taken in four-time meeting with duration of more or less two hours per meeting. The research used a design involving untreated control group with dependent pre-test and post-test and waiting list control group. The control group was given the same treatment after the research process ended. The scores gained by both groups were analyzed with Mann-Whitney Test. The data resulted from observation were analyzed qualitatively. Both analyzing methods showed that there was significant difference of the average of depression rate between the experiment group and the control group at the pre-test and post-test with the value of $F = 11.589$; $p=0.001$ ($p<0.05$). This result showed that hope intervention had significant influence on decreasing the depression rate in the experiment group compared with that in the control group. Therefore it can be concluded that Hope Intervention can lessen depression in the survivors of natural disaster.

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Keywords: hope; cold lave; depression

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1. Introduction

Prior to the big explosion and eruption on 26 October 2010, the status of Mount Merapi had been raised to "Caution Alert" since 20 September 2010. Eventually it was reduced to "Alert" on 3 December 2010 (Andayani, 2010). The eruptions had discharged a massive amount of sand and stones, piling up on the slopes of the volcano. When rain poured heavily on the slopes, rivers brought cold lava down and flooded the lower grounds. Kali Putih River that runs through Sirahan Village, Magelang District overflowed, making the village one of areas heavily affected by the cold lava flood. The disaster brought impacts to the environment and people. According to the National Disaster Mitigation Agency (BNPB), the eruptions and cold lava flood caused damages in the sectors of settlement, public infrastructure, economy and society (BNPB, 2011). There were more people living under poverty level so that social strata changed (BNPB, 2010). The residents of Sirahan Village lost their main livelihood as farmers because their farming lands and gardens were covered by the volcanic materials. Moreover, it was difficult for them to get funds to start businesses and recover their economy.

The impacts were not only physical but also psychological. Ehrenreich (2001) revealed that the source of trauma does not end when the disaster ends or when a victim has been evacuated. Survivors need to stay at refugee camps in a short or long period of time. The people of Sirahan Village had to go through this condition. They stayed at temporary shelters for three months. Afterwards, many of them still had to remain there because they no longer had any house due to the flood and some of them were still afraid to go back to their houses because the flood could still happen. Those already going back were always haunted by anxiety when the sky began to turn dark. They would have gone back to the shelters if they found it was likely going to rain (Ramadhiyanti, Sokang, Suciati, & Viola, 2012). Such condition is similar with those depicted by numerous older researches, which conclude that post-disaster responses may come up in different forms such as decrease of consciousness, derealization, depersonalization and amnesia (Eriksson & Lundin, 1996). In addition, sadness and distress, paranoia, anxiety, shock and disbelief take place at high intensity (Gray, Maguen, & Litz, 2004). High intensity emotion that is not well tackled will generate symptoms of anxiety and affective disorder as well as the symptoms of Post-Traumatic Stress Disorder (PTSD, Dirkzwager, van der Velden, Grievink, & Yzermans, 2007; Gray et al., 2004; Irmansyah, Dharmono, Maramis, & Minas, 2010). Disaster-affected people usually also show symptoms of being difficult to control anger, suspicious, sensitive and hostile, avoiding or withdrawing from other people, having sleep disorder due to nightmares, waking up suddenly due to flashback and anxiety of disaster to happen again (Ehrenreich, 2001). The disaster affected so much the people of Sirahan Village that they easily believed in anything that actually was still doubtful. They had once fled back to the shelters because one of them dreamed that bigger flood would come. In addition, there was someone believed to have ability to predict the future so that he could make sure when lava flood would come (Ramadhiyanti et al., 2012).

The results of preliminary research showed that there were complaints from a number of affected people. Women said that the disaster kept bothering their mind. They were always worried about the flood that could happen again. It affected them physically. Every time they saw cloudy sky their heart pounded and body trembled. They also would feel dizzy, painful at chest, hard to sleep and often have nightmare. Groups of teachers also made complaints. Following the disaster, they found difficulties to run school activities. It was difficult for them to handle the behavioral changes of their students who became more "disobedient" and even often skipped school. They also found difficult to accommodate the complaints of students' parents about the changes and fear in their children. Village officials also went through hardship because the residents demanded aids from the government. When the aids came, they expected aids in the form of goods and money more. In addition, the burden of their work got heavier, making them suffer from both physical and psychological disorders. Meanwhile, volunteers disapproved the attitude of the affected people because they received material aids only. They kept complaining and the volunteers got tired of hearing. However, they could hardly understand. On the other hand, the volunteers had their own burden because while thinking about the affected people, they had to think about their own conditions too (Ramadhiyanti et al., 2012). Such complaints fit the symptoms of reduced Autobiographical Memory Specifity, which explains that individuals suffering from depression tend to be hard to form detailed memories about an unpleasant event and to avoid remembering them, making them difficult to make decision to solve the problem, lose positive reinforcement, feel powerless and depressed (Neshat-Doost et al., 2012)

Disaster most often come suddenly and is followed by many problems the affected-people have to face. They need aid not only in the form of materials but also psychology. However, due to many donors bringing aids with them come concurrently, activities of delivering psychological aids often go less effective. Therefore, psychological aid must be more systematic and well-coordinated (David, 1990). Several authors (Dash, 2009; Yule, 2006) stated that psychological aid for survivors is mostly in the form of Critical Incident Stress Management (CISM) and psycho-social intervention. Ruzek et al. (2008) proved that intervention of cognitive-behavior therapy is effective for overcoming clinical problem experienced by survivors of disaster and terrorism. Sanchez (2007) found that counseling with drama in survivors can be used to develop resilient personality and grow hope out of the situation that may make them desperate. Based on observation it seemed that the aids given to the affected people were mostly goods for fulfilling their physical needs, skill trainings and activities for groups of children to elderly. On the other hand, psychological assistance had not been given to the affected people since the day of disaster.

Formerly Intervention of Hope was used more in medical aspect. Some researchers found that hope can reduce the pain suffered by patients of bone disease (Berg, Snyder, & Hamilton, 2008) and victims of accident (Elliott & Kurylo, 2000). In both researches, intervention of hope was able to increase patients' tolerance to pain despite their physical/medical disorder. There were many proves showing the effects of hope intervention in medical aspect so that some researchers began to apply it in psychology. In their research on 32 people participating "Hope Therapy", Cheavens et al. (2006) stated that "Intervention of Hope" significantly increase the subjects' agency thinking, which is a component of hope, meaningfulness of life and self-esteem. This therapy is also influential on the decrease of the symptoms of depression and anxiety. It is in line with the research done by Klausner (Cheavens et al., 2006) on grownups diagnosed with depression.

The process of Hope Intervention consists of goal setting, strategy planning and motivation strengthening for achieving the goals (Maryd, 2010). Hope Intervention (Berg et al., 2008) consists of 4 components, namely (1) guided imagery, (2) dialogue, (3) strategy Instruction and (4) worksheet. The Guided Imagery is a process in which each participant is asked to imagine a goal that they will achieve and a strategy they will to use. This process aims to see how experiences obtained can help them to reach the goal in the future. Furthermore, the dialogue and strategy instruction are processes more emphasized on participants' experiment ability to make in-depth questions and to lead their thinking to strategy formulation for the future.

The worksheet is needed by the participants to write their goals and positive self-talk obtained. The relationship between therapist and client in the Hope Intervention is collaboration so that it needs both sides. Therapist as educator, mentor and guide helps client to make decision. The main goal of therapy is based on the need of the client and the client is free not to participate or ask for help anytime. Client is accepted with conditions and regarded as someone who is able to make decision in life. There must be a healing relationship with clients. It is very important because actual recovery can be achieved through this symbiotic relationship (Kennedy, 2010). In addition, the goal setting during the intervention must be observable, measurable, realistic and stimulating. However, the therapist needs to reinforce the environment for providing fair opportunity to reach the goal (Snyder, 1995). The Hope Intervention suggests fixation of personally meaningful things for clients. Identification of client's goal can also be done using methods of narration and story-telling. With these techniques, therapist and client together try to find sentences conveying "low hope" and replace them with ones carrying more positive thinking and hopes (Weis & Speridakos, 2011). Hope Intervention can be done in either group or individual session, and started with assisting client to identify a goal.

Intervention that was done in this research used group-based method that has been proved more effective due to consisting of psycho-education, counseling and psychotherapy focusing on learning and teaching process as well as therapy, medication and healing (Anderson, 2007). In addition, it also accommodates emotions compared with the individual therapy (Morgan & Winterowd, 2002). Yalome and Leszcz (2005) stated that when each member of the therapy group receives support and attention, the empathy and sympathy they get will make a relief in them and built trust among them. Hartman and Zimberoff (2006) also proved in their research that through methods such as catharsis in group therapy is effective to accommodate every member of the group. Catharsis will make an individual able to return to condition of their security and balance. This process of expressing emotions will influence positively on the structure and function of the brain, stimulating certain change after the process of therapy (Etkin, Pittenger, Polan, & Kandel, 2005; Fuchs, 2004). This change can be one of the determinants of an effective

therapy as indicated by the release of bothering stimuli. The subjects are also facilitated to do cognitive control over any stimulus from the society. Group therapy done on basis of local community and by involving group activities and depression screening statistically has shown positive correlation with the decreasing number of suicide case (Oyama et al., 2006).

The implementation of hope intervention method needs further consideration. Researches have shown that the method involving rigid meeting structure is not effective in decreasing the degree of depression as well as increasing the degree of hope compared with casual visit full of kinship and friendliness (Wilson, et al., 2010). Moreover, the components of hope, which are agency and pathway, have different degree of correlation with depression. Agency shows significant correlation while the pathway does not (Arnau, Rosen, Finch, Rhudy, & Fortunato, 2007). In this research, intervention of hope aims to lessen depression suffered by survivor of cold lava flood from Mount Merapi. Depression cannot be separated from PTSD. The sufferers usually have no pleasure in life, get easily angry, tend to commit suicide and withdraw from daily activities (Tariq & Aslam, 2009). Depression is also indicated by biological change, among others high Mass Body Index, adrenocorticotropin and leptin that link to other physical disorders (Cizza et al., 2012).

Researches have proved that intervention using behavioral approach has correlation with the increase of subjective well-being (SWB) while the intervention with approach of positive psychology show the increase of SWB from moderate to high level. In addition, positive-psychological approach also points out significant impact on every treated individual within their community. In medical world, Hope Intervention is not recommended at the early phase or before medical treatment (Weis & Speridakos, 2011). A research done by Wilson et al. (2010) even proved the contrary, which is that intervention of hope cannot reduce the degree of depression. Compared with intervention of hope, visit by other people with whom a patient can share stories seems to be more effective. The results of this research indicated that a depression sufferer needs other people to talk to more that intervention in the form of material gifts. The implementation of hope intervention is more suitable for the context of "human service" or in the context of clinical treatment and hospital service other than conditions such as in school or company (Weis & Speridakos, 2011).

Therefore, this research aimed to decrease the level of depression suffered by groups of people facing post-disaster condition by using method of hope intervention. The result of this research was expected to be a new insight about positive psychology application for the survivors of the cold lava flood especially for women, teachers, volunteers and village apparatus. This research was also expected to be able to give benefits to practitioners in doing psychological intervention to the survivor of cold lava flood. The hypothesis of this research was that there is a decrease of depression suffered by the survivors of cold lava flood in the experiment group after hope intervention was given compared with the control group.

2. Method

2.1. Instruments

This study employed three instruments.

- Sheets of Research Information and Participant Approval. This instrument explains to each subject about the procedures of the research, rights and obligation of the subject and researcher, confidentiality of data, and subject's approval to participate without any force from any person.
- Beck Depression Inventory (BDI). BDI is used to measure the residents' depression. It is done before and after treatment given to experiment groups and control groups without treatment. BDI consists of 21 items, each of which has several statements that have been adapted to Bahasa Indonesia. The participants are asked to choose any statement suitable to their condition and they are allowed to choose more than one statement.
- Sheet of Intervention Activity Evaluation. This sheet is used to give feedbacks to researcher and facilitators about the activities. It is given in the end of every process of intervention. The evaluation itself consists of 12 items separated into 4 items about material delivery and 8 items about the facilitator. The items of material delivery cover the goals, benefits of the materials, completeness of the materials and order of material delivery. And the items of facilitator's condition cover the attitude and behavior, material mastery, presentation, use of language, cleanliness in talking, use of time, ability to conclude material and spirit. The responses available in

evaluation sheets are least, less, enough, good and very good. At the end part, the subjects were asked to fill in descriptive feedbacks so that they could tell what should be improved in the next meeting.

2.2. Experiment Planning

This research used *untreated control group design with dependent pretest and posttest*. According to Shadish, Cook and Campbell (2002), this design does comparison between the results of pretest and posttest of the experiment group and control group. The dependent variables (pretest and posttest) are measured with the same instrument (*proxy test*).

2.3. Research Participants

The participants of this research were four groups of residents of Sirahan Village, namely groups of mothers, teachers, volunteers and village officials, totally amounting to 31 individuals. The control groups were residents of Cangkringan Village that was also hit by the flood. They were also 31 individuals.

2.4. Intervention

Intervention of hope was given to decrease the depression rate of the survivors of cold lava flood. The meeting with the subjects to execute the intervention was done 4 times, each of which lasted more or less two hours (Cheavens et al., 2006). The whole process took two weeks to complete. Every meeting was led by two people, namely facilitator and co-facilitators, who should meet these following qualifications: A psychologist or a student of Post-graduate program of Psychologist Profession in clinical field, who had done professional work or research, having good understanding about physical and psychological condition of the survivors of the cold lava flood or of disaster in general, having worked to assist or handle victims of a natural disaster, having experience as facilitator in a training, communicative, agreeable, attractive and able to arouse atmosphere, and the effect of therapy was measured using an instrument given after the therapy given in order to find out the different conditions before and after the treatment.

2.5. Research Execution

Procedures of research were as follows: early assessment done through observation and interview on site of the disaster, making the modules of Hope Intervention Program, adaptation of depression scale, test of the modules and depression scale, selection and orientation of facilitators and co-facilitators, implementation of Hope Intervention Program. The stages of program implementation were as follows: initial meeting for obtaining approval from research participants (informed consent) to follow the whole process, pre-test: asking the participants to do the depression scale a week before training, implementation of the program: the meeting is done 4 times in 2 hours each, post-test: participants did the DBI scale on the final day of training, made evaluation of the training, for example, by giving feedbacks about the tools used, facilitators' capacity in delivering materials and about the benefits of the program.

3. Results

3.1. Description of Research Data

Data obtained obtain in this research is the result of depression score calculation out of 62 people divided into two groups: experiment group (n=31) and control group (N=31).

Table 1. Descriptive Statistic of the Data

	Number of Subjects	Minimum Score	Maximum Score	Mean	SD
Pre-test	62	0	46	15,403	9,817

Post-test	62	0	35	11,161	8,509
Groups	62	1	2	1,500	0,504

Table 2. Statistic Comparison of Scores between the Control Group and Experiment Group

Groups		N	Minimum Score	Maximum Score	Mean	SD
Control	Pre	31	.00	46.00	11.61	10.90
	Post	31	.00	35.00	10.16	9.13
Experiment	Pre	31	4.00	36.00	18.52	7.86
	Post	31	.00	30.00	11.39	7.73
	Follow	31	.00	31.00	13.12	7.69

The description statistic showed that the pre-test score of the control group (M=11.61) lower than experiment group (M=18.52). The result of analysis showed that the average between both was significant (t=-2.86; p<0.05). On the other hand, the average of post-test score between the control group (M=10.16) and the experiment group (M=11.38) revealed the difference that was not significant (t=0.57; p<0.05). The inequality of the average score of pre-test between the control group and the experiment group could take place because there was no random assignment applied. Therefore, technique of analysis used in this research was Covariance Analysis with post-test score as hanging variable, groups as free variable and pre-test score as Covariate. There was significant difference between the experiment group and the control group on the measurement of pre-test and post-test.

3.2. Test of Hypothesis

Test of hypothesis was done with two-way Anova by comparing the pre-test and post-test scores of the experiment group and those of the control group. Below are the details of the analysis result:

Table 3. The summary of the variant analysis result

Source of Variation	SS	db	MS	F	Sig	Eta^2
Repetition	557.815	2	557.815	25.602	0.000	0.463
Repetition*group	258.395	1	258.395	11.589	0.001	0.165
Group	172.778	1	172.778	2.473	0.121	0.040

Note. SS = Sum of Squares; db = Independence Degree; MS = Mean Squares; F = F value; Sig = significance;

Based on the table above, the results of test show that: (1) There were significant different average degrees of depression on measuring the pre-test and post-test (F=25.602; p<0.05). (2) There was no significant different degree of depression between the experiment group and the control group (F = 2.473; p > 0.05). (3) There were different average degree of depression that was significant between the experiment group and control group in the previous measurement (pre-test) and the next treatment (post-test) with values of F = 11.589; p = 0.001 (p < 0.05). It means the Hope Intervention had significant influence on the decreasing degree of depression in the experiment group if compared with the control group.

The test result showed that the intervention to experiment group can lessen depression as seen from the depression score of the experiment group lower than that of control group by controlling the depression score before the delivery (F=4.59: p<0.05). The effective contribution of intervention to the decrease of depression was 7%. The test result using repeated observation Anova was done specifically on the experiment group because toward this group observation was done three times (pre-test, post-test and follow-up). The analysis result showed that there was different depression inter-score when the observation (F=25.08; p<0.05) showed that the impacts of the intervention on the decrease of depression was relatively stable. This result was strengthened by the result of contrast test that showed that the depression score on the last condition was still low compared with the previous condition before intervention (F=6.15; p<0.05). Based on the results of the quantitative analysis as stated previously, it can be concluded that the hypothesis is accepted. The Hope Intervention Program can lessen the depression suffered by the experiment group compared with the control group.

4. Discussion

Based on the explanation of the results of the quantitative analysis as previously stated, it can be concluded that the hypothesis is accepted. The Hope Intervention program can reduce depression in experiment group compared with the control group. It is in line with the research done by Cheavens et al. (2006). Hope Intervention is able to reduce the symptoms of depression and anxiety.

One of the factors affecting the success of Hope Intervention is the module used as guidelines of delivering the intervention. The process of Hope Intervention systematically using methods of sharing, discussion and interaction among facilitators and subjects make the subjects feel comfortable. Intervention done in this research used group-based method that proved to be more effective because it consisted of psycho-education, counseling and psychotherapy focusing on learning and teaching process as well as therapy, medication and healing (Anderson, 2007). According to Morgan and Winterowd (2002) group therapy is more effective because it can accommodate emotion more that individual therapy. During the process of intervention, participants were given opportunity to share their feelings, make responses and give support to one another. Yalome (2005) stated that when members of group obtain support and attention, empathy and sympathy received will bring about relief and trust in the group. It is similar with the findings of the study done by Oyama et al. (2006) when they found that intervention program for local community they implemented successfully reduced the number of suicide in women in a village. Their research stated that this program can succeed because the training is carried out for disaster-affected people based on their togetherness as a community. Togetherness during therapy motivates them to join the program of hope intervention cooperatively and effectively.

In addition, the role of facilitators is also very significant for the success. They must be able to give examples of the materials given in training, willing to express their personal experiences to subjects and able to respond jokes made by the subjects. Intimate and casual relationship can lessen the stress they feel after disaster. Similarly, research done by Kennedy (2010) stated that mutual relationship with the clients is very important because total recovery can be achieved through it. Positive response from the subjects also contributes to the success. Most subjects of this research showed quite strong enthusiasm in receiving the intervention. It was indicated by their willingness to follow the process and do the homework given by the facilitators. In addition, most subjects also admitted they received benefits from this intervention. It is in line with the goal of the mindfulness therapy. Mindfulness refers to the process when individuals remember certain experience they go through and try to feel any sensation on their bodies and minds.

This is in accordance with the conditions found during the process of hope therapy. Furthermore, the results of this study are also supported by the study done by Hofmann, Sawyer, Witt, and Oh (2010), which suggests that an experiment conducted on 1140 participants showed that mindfulness therapy is an effective therapy in reducing the degree of anxiety and symptoms of emotional disorder. The main goal of this therapy is to promote transparency, curiosity and self-acceptance. The weakness of this research were among others its limited internal validation due to non-randomized selections of subjects in each group, its weak construction validation due to not using inter-rater but qualitative description of the observer and its weak external validation in controlling the interaction of causal relationship with settings due to being done at one place only, namely Sirahan Village.

Based on the research analysis above it can be concluded that Hope Intervention is significantly influential ($p=0.001$; $p<0.05$) on the decrease of depression degree of the experiment group compared with the control group. Thus, it can be said that the Hope Intervention program was effective for lessening the depression of the survivors of cold lava flood from Mount Merapi. Based on the discussion above, the researcher make some suggestions as follows: (1) The implementation of materials such as goal setting, pathway thinking construction and agency thinking construction shall be applied in all aspects of life and continue after the program ends. In addition, it needs strong commitment and willingness to carry out the action plan that has been made in order that the ideas resulted from the process of intervention does not end up at the phase of planning only. (2) The results of this research showed that the program of "Hope Intervention" was able to lower down the depression of the survivors of cold lava flood. Therefore, practitioners can apply this module of "Hope Intervention" in implementing survivor-facilitating program following a disaster, which has classification of facilitators as follows: able to understand survivors' psychological dynamics during the process of intervention, responsive to their condition and their groups' dynamics,

able to understand local language, and master several ice-breaking games to enliven situation. (3) Researchers are expected to be able to develop a module of "Hope Intervention" applicable for survivors of other kinds of disasters in order to make sure whether this intervention is effective too.

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